

IVAN FAN

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Ivan has over 10 years of experience delivering technology solutions in a software engineering role across many industries including: Defense & Aerospace, Restaurant Hospitality, Financial Services, Compute Networking, and Industrial IoT. As a Senior Software Engineer, he specializes in cloud strategy, architecture, and implementation, micro-service, and serverless architecture, and big data analytics. Ivan holds a BS, Computer Engineering from University of Texas at Arlington. In his current position with General Electric, he is leading the Predix Public Cloud Team supporting services on Amazon Web Services, Microsoft Azure, and Google Cloud.

EXPERIENCE

OCT 2019 – PRESENT

STAFF SOFTWARE ENGINEER, GE DIGITAL

Predix: As a cloud-based software platform Predix enables industrial-scale analytics for asset performance management (APM) and operations optimization by providing a standard way to connect machines, data, and people.

- Software Architect for NextGen Predix Identity Access Management for AWS Console/CLI, Client VPN, and Jumphost/Bastion. Leveraged PingIdentity for MFA and SAML authentication.
- Team Lead/Software Architect for RESTful Web API metering initiative. Developed API metering framework written in GoLang for throttling Predix web services. Implemented leaky bucket algorithm (FIFO) and sliding window algorithm to handle traffic burst patterns.
- Team Lead/Software Architect for Predix insights infrastructure CI/CD pipeline. Developed python CLI for administering software upgrades to EMR Hadoop cluster across 1000 nodes.
- Team Lead/Software Architect for GE Aviation/Power/Healthcare/Renewables Cloud Optimization initiative. Lead developer for AWS Cloud Optimization framework written in Python botocore libraries by detecting underutilized resources in all AWS regions. Identified at least \$4 million per month potential savings on AWS cloud costs.
- Team Lead for Predix Telemetry initiative. Developed complete monitoring diagnostic framework leveraging open source tools such as Grafana, Prometheus, and node exporter agents. Successfully deployed this monitoring solutions to all environments and increased overall uptime of platform/infrastructure services.

JAN 2017 – PRESENT

SENIOR SOFTWARE ENGINEER, GE DIGITAL

- Provide technical solutions for the Predix Public Cloud Team focusing on Amazon Web Services, Microsoft Azure, and Google Cloud. Responsible for Predix Internal services consisting of DNS, VPC/VNET Networking, Image Management, Boundary Defense, VPN, Active Directory, and NAT Egress.

- Lead Developer and Engineer for Infrastructure-As-Code ecosystem for Predix. Leveraging open source tools such as Terraform for creation and management of cloud infrastructure resources. Defined development pipeline for all infrastructure changes within the Predix environments.
- Lead Architect for Next Gen NAT Egress Solution for Predix. Leveraging Transit Gateway for funneling NAT egress traffic to a single location along. Led the Network Inspection Stack with NLB and ASGs for scaling out IDS services consisting of Bro and Suricata.
- Lead Engineer for the Predix VPN solutions. Leveraging Azure VPN Gateway, Sophos VPN, and Pritunl VPN solutions. Leveraged MFA solutions including RADIUS with Azure AD as well as DUO Auth Proxy and Windows AD.
- Lead Engineer and Developer for Predix Vanity URLs. Developed a self-service Ansible pipeline for exposing predix application and services with friendly domains. Leveraged UltraDNS, AWS Route 53, and Layer 7 Load balancers for management of http/https requests.
- Develop and Implement CI/CD Jenkins pipeline for creation and management of Ubuntu and CentOS AWS Hardened AMIs leveraging Hashicorp Packer for automated and repeatable image creation.
- Lead Developer for the PIE - AWS Account Manager Bot. Leveraged Python + Botocore + TerraTest + Terraform to manage AWS resources across 100+ AWS accounts.
- Drive initiative for Splunk - Log Analysis and Metrics effort leveraging Chef Automation to deploy Splunk forwarder across 1000+ nodes across multiple AWS regions.

JULY 2016 – DEC 2016

SENIOR SOFTWARE ENGINEER, CLEVYR INC.

Koch Community: is a cloud based community calendar that provides a platform for users to create, edit, and share events internally and externally. This platform provides services to desktop web clients and mobile iOS/Android clients.

- Developed admin portal features consisting of improved searching, filtering, sorting, copying, and multi-delete of events. Leveraged front-end frameworks **Angular.JS**, back-end **Node.JS** server, with **MongoDB** (NoSQL) as the primary data store.
- Developed and implemented a complete admin ACL (Access Control List) for Super Admins, Regional Admins, and Users. Worked closely with client to scope out requirements for each role. Feature implemented leveraging **Angular.JS**, **Node.JS**, and **MongoDB** (NoSQL).
- Developed and prototyped the Next Gen Soji Community push notifications service for user event notifications and a server side pagination service for rendering lists of objects on any given React Component. Implemented basic notification and pagination features leveraging front-end frameworks **React.JS/Redux.JS** and **JSON-Server** for mocked data.
- Led AWS cloud migration of existing services to the AWS ecosystem using EC2 (Ubuntu flavor), S3 Bucket, surrounded by Elastic Load Balancer for customer Community App instances. Custom configuration of server automated by Puppet Manifests and or Ansible Playbooks.

MAR 2015 – JUL 2016

SOFTWARE ENGINEER 3, CISCO SYSTEMS

Jabber (XMPP) Instant Messaging Service: Cisco Jabber instantly interacts with instant messaging (IM) and presence; IP voice and video telephony; mobile collaboration anywhere on any device.

- DevOps Lead / Release Manager: Work closely with all functional teams to integrate new features and identify software defect fixes. Enforced mandatory code reviews for all changes and improved release

frequency cycle by 100X. Striving to release to production multiple times per day to fulfill the Continuous Delivery model.

- Continuous Delivery and Integration: Leveraged **Jenkins**, **Puppet**, and **Fabric** for Continuous Integration and Continuous deployments of Jabber services. Maintain existing Unit, Functional, Integration, and Load testing frameworks for Jabber Messenger Services.
- Software Quality Detection: Developed a **Jenkins** plugin written in Python to detect overall test coverage drop and memory leaks by performing statistical analysis on each build during functional and performance testing. This automated system compares metrics from previous builds to determine the overall health overtime of the Jabber Messenger code base.

Cisco Cloud Infrastructure R&D: OpenStack Public cloud offering provided for Cisco web services.

- Lead migration of existing jabber messenger CI/CD services from in house data-center to Cisco Public Cloud Infrastructure (OpenStack). Provision and build out Jabber services leveraging Puppet.
- Lead Engineer for defining openstack network requirements for QA, Stage, and Production environments for Jabber Messenger Service and Jabber Multi User Chat Service (Group Chat).
- Lead Engineer for the Jabber Load Testing framework deployment on OpenStack. Simulate 200,000 user logins and random messaging patterns to test Jabber functional use cases under load.

NOV 2013 – FEB 2015

SOFTWARE ENGINEER 2, TRADESTATION TECHNOLOGIES

Web API: The TradeStation [Web API](#) is a Collection of RESTful web services for interacting with TradeStation brokerage services that provide real-time market data, order execution services for trading equities, options, and futures. (<http://tradestation.github.io/webapi-docs/>)

- Developed an HTTP API automated testing framework for a distributed, real-time event publishing web service. This testing suite covers all streaming endpoints that consist of real-time and historical market data.
- Developed an automated deployment system for the TradeStation Web API throughout all internal environments and production. Heavily leveraged **Chocolatey** (<https://github.com/chocolatey/chocolatey>) for automating installation of applications and applying server configurations per environment on Web Servers.

Big Data/Hadoop Project: Web API Log Analysis: This project heavily leverages Amazon Web Services [EMR](#) ([Hadoop](#)/Map Reduce) to analyze all API log data to gain a better understanding of the overall Web API usage. Mapping all API requests and aggregating counts per URI, Server, and returned status codes.

- Developed and maintained new features to the Log Parser written in Python. Support new fields and URIs that need to be aggregated for request counts.
- Implement and maintain new charting features to help analyze the mined data. Heavily leveraged NVD3.JS (<http://nvd3.org/>) for representing log data.

OCT 2012 – NOV 2013

SOFTWARE ENGINEER 2, NCR CORPORATION

Restaurant Guard: Real-Time Distributed Computing for Machine-Learning based Theft Detection: Uses pattern recognizing algorithms and statistical analysis to identify employee theft on client

point-of-sale systems. Eliminates the need for manual analysis of performance metrics by generating actionable data and history. Restaurant Guard is a SaaS (Software as a service) solution providing solutions to the hospitality industry all across the World.

- Developed feature for localizing the Restaurant Guard Data Conversion service. This C++ driven process converts point of sale transaction data to XML format using Unicode standards for character encodings to support any language.
- Developed feature for localizing capabilities to the Restaurant Guard Report Engine service written in C#. Implemented a framework for dynamically switching resource string files based on the company cultures settings. The Restaurant Guard Report Engine is built around the ActiveReports framework, a .NET reporting tool used to format various Restaurant Guard reports to PDF/Excel files.
- Developed feature for localizing all PostgreSQL server and SQL Server for historical archive. Implemented database enhancements by altering database tables and enhancing ALL database stored procedures to support a Unicode character encoding.

JULY 2010 – OCT 2012

SOFTWARE ENGINEER 1, LOCKHEED MARTIN

F-35 Lighting II: Joint Strike Fighter Program - Systems Integration and Test: The F-35 is a fifth generation multirole fighter to replace existing F-16, A-10, and F-18 jets currently in service. The JSF (Joint Strike Fighter) Program consists of three major contractors. Lockheed Martin, BAE Systems, and Northrop Grumman.

- Database development test tool for System Integration and Test Team. Test Tool consisted of automating mapping of test results to requirements for real-time metrics for system integration team.
- Perform Block 0.5 and Block 1.0 system testing, including stability, system integration, and system check-out. Identify problems and write Software Product Anomaly Reports (SPARs) to ensure products are remedied.
- Performed all regression system tests for software package Block 0.5 and Block 1.0 on all Communication Link16 systems.

EDUCATION

2011

BS, Computer Engineering, UNIVERSITY OF TEXAS AT ARLINGTON

Class Honors,

GPA in Major: 3.46

ACM and IEEE Member

Technical Expertise

Languages:	HTML, CSS, JavaScript, Java, C, C++, C#, Python 2.7/3.0, GoLang, PHP, Perl, Bash, SQL, Ruby
Platforms:	Unix/Linux/Ubuntu/CentOS, Windows Server 2005/2008/2012, ASP.NET, Android OS, MacOS/iOS
Databases:	SQL: Oracle Database, MySQL, SQLite, PostgreSQL, Microsoft SQL Server NoSQL: MongoDB, Redis, Apache Cassandra
Web Dev Tools:	Angular.JS, React.JS/Redux.JS, Backbone.JS, Node.JS, NPM, Django, Flask, PHP Code Igniter, Apache Webserver, XAMPP, LAMP, ASP.NET MVC, ASP.NET WEB API, .NET Framework, IIS Manager. Google Web Fonts, Font Awesome Icons, SASS, STYL
DevOps Tools:	Amazon Web Services, Microsoft Azure, Google Cloud, Docker, Puppet, Chef, Test-Kitchen, Rspec, StatsD, Graphite/Grafana, Elastic search, Log stash, Kibana, Splunk, Jenkins CI/CD.
Dev Tools:	Vi+m > EMACS, Atom, IntelliJ, Eclipse, NetBeans, Pycharm, WebStorm, Atom, Sublime, Visual Studio 2013, MS SQL Server Manager, Team Foundation Server, Fiddler, WireShark, Postman.
Source Control:	Git: (Github , Gitlab, Bitbucket), Subversion, TFS
Special Interests:	Bitcoin, Block chain, P2P file sharing , Object Oriented Programming, REST, Web Services, HTTP/S Protocol, XMPP, Map Reduce, Polymorphism, Encapsulation, Multi-Threading Programming, Software Optimization, Embedded Systems, Interfaces, Generics, Data Structures, String Manipulation, Regular Expressions

SPEAKING ENGAGEMENTS

“Managing Cloud Infrastructure @ Scale”, DFW DevOps Days, August 2018

<https://www.devopsdays.org/events/2018-dallas/speakers/ivan-fan/>